



Note-taking Worksheet

Erosional Forces

Section 1 Erosion by Gravity

- A. _____—wearing away and moving of surface materials by gravity, water, wind, or glaciers
- B. Through the process of _____, sediments are dropped by erosion agents as they lose energy.
- C. _____ occurs as gravity moves materials down a slope as one large mass.
1. _____—material slips down a curved surface as one large mass.
 2. Sediments slowly shift downhill in the process of _____.
 3. _____ and rock slides occur when rocks break off or slip suddenly down a hill.
 4. A _____ is a thick mixture of water and sediments flowing downhill.
- D. Consequences of _____—buildings on slopes eventually have problems due to erosion by gravity.
1. Sometimes builders and residents make slopes more unstable by making them _____.
 2. Another source of instability is the removal of _____.
- E. Steep slopes can be made safer with vegetation, _____ pipes, and walls of concrete or railroad ties.

Section 2 Glaciers

- A. _____—large mass of ice and snow slowly moving on land; an agent of erosion
- B. As glaciers move, they pick up boulders, gravel, and sand in an erosion process called _____.
1. Plucked rocks at the base of the glacier _____ the soil and bedrock.
 2. Dragged rock fragments leave scars on bedrock called _____.
 3. _____ are shallower scars on bedrock.
 4. Grooves and striations indicate the _____ a glacier moved.

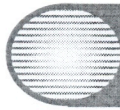
Note-taking Worksheet (continued)

- C. As glaciers retreat, they leave behind _____, a mixture of different sized sediments.
1. Till areas include wide swaths of _____ from Iowa to Montana, and Ohio to Illinois.
 2. A _____ is a ridge, or pile, of deposit left at the end of a glacier.
 3. _____—material deposited in layers by the meltwater of a glacier, with largest pieces closer to the glacier
 4. An _____ is a type of outwash deposit formed as meltwater rivers within the ice deposit sand and gravel within their channels.
- D. _____ glaciers—huge masses of ice and snow now covering only about 10 percent of Earth in areas near the poles, as much as 28 percent of Earth was covered by glaciers
1. Periods of widespread glaciation over the last 2 million to 3 million years are known as _____.
 2. The average air temperature on Earth was about _____ lower during ice ages than today.
 3. The last major ice age was about _____ years ago.
- E. _____ glaciers—exist in mountains
1. _____ are bowl-shaped basins in the sides of mountains, created by valley glaciers.
 2. A long ridge or _____ forms when two valley glaciers erode a mountain side-by-side.
 3. A _____ forms when valley glaciers erode a mountain from several directions.
 4. Glacially eroded valleys have a _____ shape, as opposed to the V shape left by stream erosion.
- F. Glaciers have changed, and continue to change, the shape of Earth's surface; sand and gravel deposits left by glaciers are important resources for the construction of _____.

Note-taking Worksheet (continued)

Section 3 Wind

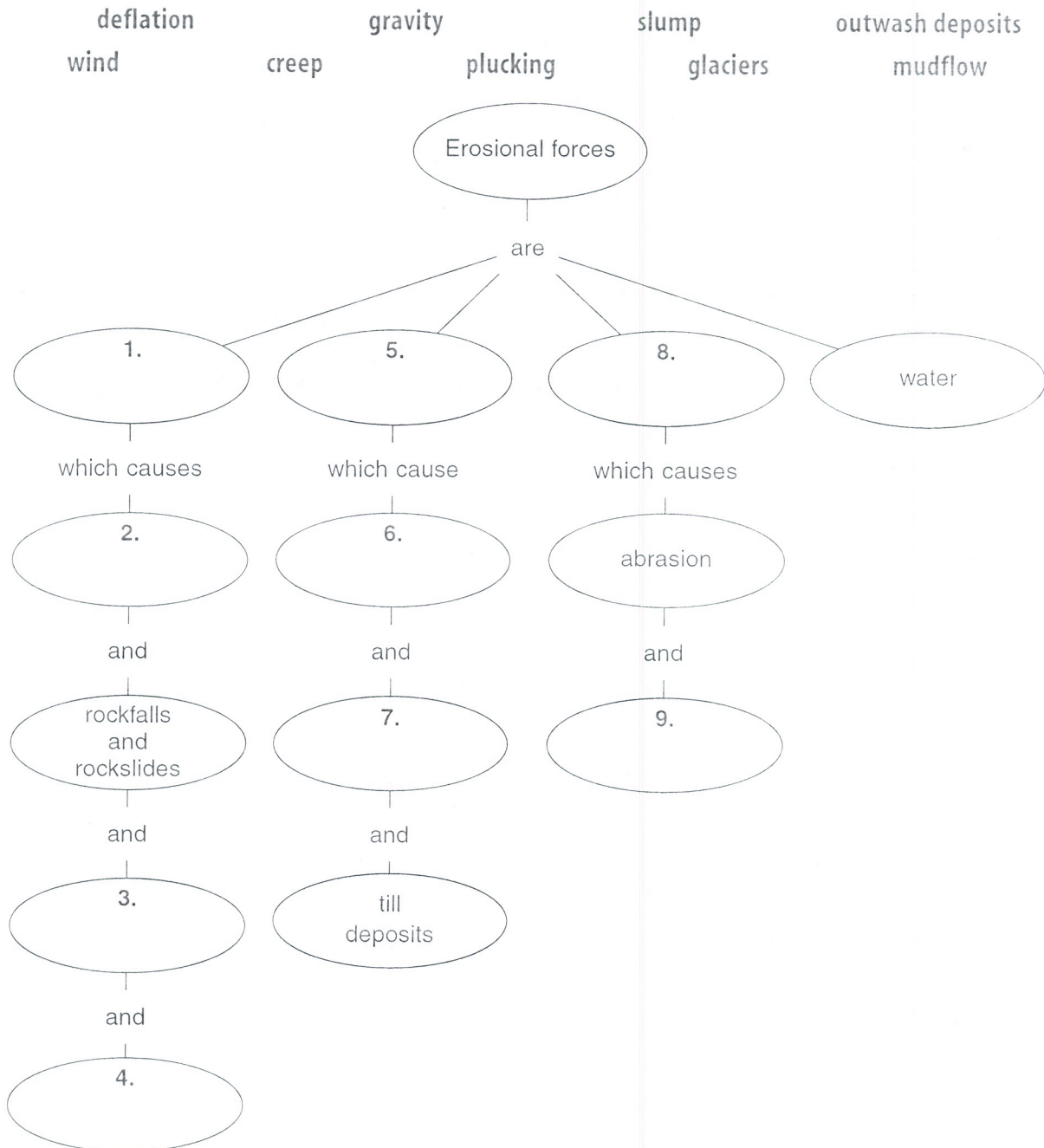
- A. _____—can scatter dust or volcanic ash over thousands of kilometers
1. _____—wind removes small particles of loose sediment, leaving behind heavier materials.
 2. Wind behaves like a sandblaster blowing sand grains against rocks wearing them down and pitting them in the process of _____.
 3. Deflation and abrasion happen most often in areas where there is little _____ to hold sediments in place.
 4. When strong winds blow in the deserts, beaches, or dry riverbeds, an airborne sand cloud or _____ occurs.
 5. _____ occur when winds blow dry topsoil from open fields, overgrazed areas, or places with little or no vegetation.
- B. Reducing wind erosion—plant _____
1. _____—rows of trees can slow down wind reducing erosion; they also trap snow to increase moisture.
 2. _____—fibrous root system plants such as grasses help anchor soil particles.
- C. _____ by wind—airborne particles eventually return to Earth.
1. Fine-grained sediments known as _____ helped form fertile soils in the Midwestern United States.
 2. A mound of sediments drifted by the wind is called a _____.
 - a. Dunes _____ as the wind continues to blow against them.
 - b. The more gently sloping side of a dune faces the _____.
 - c. Dunes have different _____, such as crescents, lines, or stars, based on sediments, wind speed and direction, and vegetation.
- D. Erosion and deposition are constantly _____ the shape of the land.

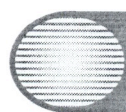


Directed Reading for Content Mastery

Overview Erosional Forces

Directions: Use the following terms to complete the concept map below.




**Directed Reading for
Content Mastery**
Section 1 ■ Erosion by Gravity
Section 2 ■ Glaciers

Directions: Use the words and phrases below to complete the cause and effect chart.

rockslides
creep occurs

plants removed from hilly areas
increased erosion

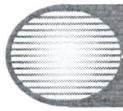
mudflows

glacier melts and retreats
rocks carried by glaciers

Cause	Effect
large rocks break loose from a slope	1.
heavy rain builds up in dry sediment	2.
3.	rocks left with scrapes and grooves
4.	outwash is left behind
freezing and thawing make soil slide slowly downhill	5.
6.	7.

Directions: Correctly complete each sentence by underlining the best of the two choices in parentheses.

8. Agents of erosion drop sediments they are carrying when their energy (increases, decreases).
9. Mass movements are caused by (gravity, glaciers).
10. Tilted walls and fences are a sign (mudflow, creep) is occurring.
11. Striations and (abrasions, grooves) are marks on rocks that indicate the direction a glacier moved.
12. (Continental, Valley) glaciers covered up to 28 percent of Earth before retreating to the poles.
13. Valleys eroded by (glaciers, streams) are U-shaped.
14. (Hundreds, Thousands) of years ago, huge ice sheets covered portions of the northern United States.
15. Till deposited at the end of a glacier when it stops moving forward is called a(n) (esker, moraine).

**Directed Reading for** *Section 3 ■ Wind*
Content Mastery

Directions: Use the following terms to complete the sentences below.

root	deflation	facing	abrasion	vegetation
storm		barchan	windbreaks	materials
sandstorm		dunes	away	loess

1. Moving air can pick up loose _____ and move them from place to place.
2. During _____, wind moves lighter particles of sand, clay, and silt and leaves heavier materials behind.
3. During _____, wind-blown particles scrape away the surfaces of rocks.
4. When soil dries out, high winds can erode it and form a dust _____.
5. Lines of trees called _____ can decrease soil erosion.
6. Grasses have fibrous _____ systems that hold soil in place.
7. Fine deposits from wind that blew across glacial outwash areas are known as _____.
8. _____ can form when wind blows sediment against an obstacle.
9. In a sand dune, the side _____ the wind is less steep.
10. Dunes move _____ from the direction of the wind.
11. A dune shaped like a crescent is called a _____ dune.
12. A low cloud of windblown grains of sands is called a _____.
13. People in many countries plant _____ to reduce wind erosion.